DOCUMENT RESUME

ED 169 520 CS 004 788

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TITLE	Schemata for Reading and Reading Comprehension Performance. Technical Report No. 120.
INSTITUTION	Bolt, Beranek and Newman, Inc., Cambridge, Mass.; Illinois Univ., Urbana. Center for the Study of Reading.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Apr 79
CONTRACT	400-76-0116
NOTE	99p.
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Academic Achievement; Beginning Reading; Cognitive Processes; Educational Theories; Elementary Education; *Performance Factors; Questionnaires; *Reading Comprehension; Reading Difficulty; *Reading Processes; Reading Research; *Reading Skills; Research Methodology; Syntax
IDENTIFIERS	*Center for the Study of Reading (Illinois); *Reading Attitudes; Schemata

ABSTRACT

Advancing the thesis that a student develops a schema for reading in the same manner as schemata for other classes of things, events, and situations are developed, this paper contends that knowledge of "what reading is" should have a potent influence on how and when a person utilizes reading skills and strategies to extract information from text. It describes how a student's schema for reading might develop and how an inappropriate schema for reading may be one factor contributing to ineffective reading comprehension performance. Next, it presents data consistent with this position along with a brief summary of other factors that affect reading comprehension performance. Some data gathered in pilot research are also discussed, together with an explanation of an improved methodology for assessing students' schemata for reading. Finally, the paper suggests some directions for future research and how this research might affect education. (Appendixes contain copies of questionnaires and passages used in the pilot study and tables of data.) (Author)

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CENTER FOR THE STUDY OF READING

Technical Report No. 120

SCHEMATA FOR READING AND READING COMPREHENSION PERFORMANCE

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The research reported herein was supported by the National Institute of Education under Contract No. US-NIE-C-400-76-0116.

CS004788

Abstract

This paper advances the thesis that a student develops a schema for reading in the same manner as schemata for other classes of things, events, and situations are developed. Consequently, knowledge of "what reading is" should have a potent influence on how and when a person utilizes reading skills and strategies to extract information from text. We will describe how a student's schema for reading might develop and how an inappropriate schema for reading may be one factor contributing to ineffective reading comprehension performance. Next, data consistent with this position will be presented along with a brief summary of other factors that affect reading comprehension performance. Some data gathered in pilot research will be discussed, together with an explanation of an improved methodology for assessing students' schemata for reading. Finally, we will suggest some directions for future research and how this research might affect education.

Schemata for Reading and Reading Comprehension Performance

Schema for Reading: A theory

Anderson (1977) has stated that a schema is a knowledge "structure" containing slots, or place holders, for each of the component pieces of information subsumed under the more general idea, or structure. A schema indicates the typical relations among its component parts; comprehending a thing, event, or relationship occurs when a sufficient number of slots in a schema are filled, or "instantiated" with particular examples of events. According to Anderson, to comprehend a thing, event, or relationship is to find a one-to-one correspondence between the slots in a schema and the "givens" in the message.

Schemata can also embed one within another. There can be a dominant schema containing numerous subschemata. The subschemata relate to the dominant schema, but some subschema may be less central to the dominant schema than others.

Event-based schemata can be organized under scripts, or scenarios. A script, or scenario, is a dominant event sequence that "describes the interaction of a number of different concepts, people, places and things--organized around a goal, for example, eating . . . Knowledge of scripts for recurrent events enables the child (or adult) to predict what, when, and who in familiar situations" (Nelson, 1977, p. 222).

Thus, schema theory posits that knowledge is organized into structures embedded in more dominant and more abstract structures. Comprehension is possible when the features of an event can be matched with slots in one's

schemata. Not all slots require filling and often slots are filled by inference rather than by information actually given in the event.

Since reading is a process event, a person learning to read is developing a schema for reading. Embedded within that dominant schema should be subschemata, such as schemata for graphophonic relationships, for syntactic and semantic constructions, for materials used during reading, and for the settings under which reading can/cannot occur. Familiar reading situations should provoke the construction of salient scripts: reading to the teacher, reading in a circle, reading silently at one's desk, reading surreptitiously beneath the covers late at night, and so forth. Each of these scenarios, however, should share slots common to the event "reading."

Suppose beginning readers, and students having difficulty in reading, have schematized reading as primarily an exercise in rapidly calling words. Suppose that the subschema--bringing meaning to print (top-down processing)--is absent from a student's schema for reading, or organized tangential to that schema. Suppose also that word attack strategies which Smith, Goodman, and Meredith (1977) refer to as cue systems within sentences and within the reader are routinely not employed during reading, but are unpacked only when phonic analysis procedures fail and a teacher does not provide assistance. Failure to comprehend text might then be related to a student's schema for reading rather than to poor skill development alone or to limited background knowledge. Such a student may not be attempting to make sense of the text; she/he might be attending primarily to calling

words fluently in the mistaken belief that reading is decoding words fluently; she/he might be attempting to catalog bits of information verbatim to answer a teacher's questions; she/he might be assuming a relatively passive role when reading, one in which she/he brings little meaning to the page and awaits, instead, for the author to reveal the significance of information presented.

The development of an inappropriate schema for reading, encouraged by an over-emphasis on phonics instruction and teacher-centered activities labeled "reading," might explain why many poor readers are able to acquire specific word analysis skills, including some sight vocabulary, but seem incapable of synthesizing such knowledge into effective strategies for reading. It is as though such readers have not gotten the big idea--the correct perception--that reading is a language-based activity in which the reader attempts to make sense of text. Exercises designed to strengthen decoding skills, questions asked to focus a student's attention on important information, and opportunities to read aloud for the teacher would be viewed as events central to, and definitional for, reading rather than as <u>means</u> to promote the development of reading proficiency.

It is our concern that inappropriate schemata for reading are contributing to many student's failure to comprehend text. We are of the opinion that many poor readers do not perceive the importance of top-down processing in reading, do not bring their linguistic competencies to bear on text, fail to perceive the relevance of skill instruction in reading, and are thus responding in a mechanical, ritualistic manner to text.

No amount of additional skill instruction will alter significantly this pattern until such students accommodate to the perception that reading entails their own efforts to derive meaning from text.

Developing a Schema for Reading

Anderson, Pichert, Goetz, Schallert, Stevens, and Trollip (1976) suggest that general terms, such as nouns, do not have fixed, abstract meanings for the user. Such terms have a family of meanings that are shaded by context. The authors argue that the critical, or definitional, properties of a word shift from use to use, so that a property which is distinguishing in one case may be unimportant or even absent in another. We theorize that the general term reading could also have several "definitions," or distinguishing properties. We think that a student could have several scripts for reading that call for different behaviors given the various settings in which reading is possible. Webster's New Collegiate Dictionary (1973) lists more than 25 definitions for read. Nuances of meaning for read (proofread, read the riot act, read between the lines) expand that number significantly. If, as Anderson et al. (1976) suggest, the meaning of a general term is closely tied to particular uses, a student could be expected to have various meanings for reading tied to particular conditions and uses of reading. Thus, reading a book at home beneath the bedcovers might elicit different behaviors than reading street signs. Reading a recipe might require a different approach than reading a letter because the two events are perceived to be sufficiently distinct to require differential effort, attention, and strategies.

We wonder if reading in school, as it often occurs in a teacher-centered, group-oriented, and skills-focused context, may be thought of by poor readers as distinct from reading to understand or enjoy new content.

It has been our experience, reinforced by volumes of research on the nature of beginning reading instruction, that a majority of primary grade teachers and educators view the acquisition of decoding skills as the major focus of primary reading instruction (Chall, 1967). During the first three years of school, students are supposed to learn how to read. It has been thought that the ability to read to learn will develop as a natural outgrowth of learning to read once a student has become a proficient reader--an efficient print processor. Since the context of primary texts is "elementary," it has been argued, comprehending primary text has been straight-forward and has usually not taxed students' reasoning capabilities. Researchers have tended to support this emphasis on code-breaking skill instruction in the knowledge that comprehension of text requires fluent decoding skills.

In many schools reading is a teacher-centered activity. Students are taught that to read is to call words aloud, fluently, and with good expression. Subsequent to reading the student has been expected to recall factual information accurately in responses to teacher-initiated questions. There have been rules to learn, repeated exposures to flash cards, work-sheets to fill at a desk, and a basal "reader" to read. In many primary classrooms reading has been a subject taught separately from math, social studies, spelling, and handwriting. Reading has been a time when special skills were to be exercised, memorized, and, ostensibly, transferred

somehow to other texts. Reading books for pleasure has been an activity outside "reading"--one done to fill spare time or to write a book report.

Many educators have not thought it necessary, or even appropriate, to stress reasoning processes during beginning reading. For instance, questioning at the primary levels has been viewed as a technique for checking on decoding proficiency--correct answers being an indication that the text was decoded accurately. Questioning at the primary grade level generally has not been advocated as a means to promote thinking about what might be read, or to promote inferencing about the significance of what has been read (see Stauffer, 1975, for an exception to this trend).

Reading in the intermediate grades has either not been addressed systematically (Durkin, 1977a), or it has been restricted to learning new vocabulary in a basal reader and answering comprehension question posed by the teacher and the workbook. Discussion is frequently viewed only as a means to identify correct answers to questions--seldom are the students encouraged to reason about the significance of what they have been asked to read and how the events portrayed relate to their own experiences.

It is clear that students' failure to comprehend text subsequent to learning "how to read" may be a function of less-than-automatic word attack skills (Golinkoff, 1975-76). Failure to comprehend text may also be related to a lack of interest in reading (Betts, 1976; Tovey, 1976) or to a limited base of experience. However, while interest and experience are necessary, they are not sufficient conditions for reading to occur.

According to Waller (1977), "thinking is a necessary prerequisite for reading at any level (beginning or mature), for any of its subparts (decoding or comprehension), and for any purpose (pleasure or information)" (p. 1). A child has to learn that reading has as its purpose the communication of thoughts and feelings from the writer to the reader.

It is our contention that many poor comprehenders are passive readers, responding mechanically to graphic stimuli, just as they have been taught to do in grades 1, 2, and 3. No accommodation (Anderson, 1977) of their schemata for reading occurs upon entrance to grade 4 because no such drastic change is perceived necessary.

We believe that the study of students' critical reading performance must consider the context in which reading occurs, not just the reader's ability to reason at a particular level. Otherwise, the practical significance of such research is limited to laboratory settings. Schema theory, applied to reading, is an effort to meld theories about the structure of knowledge with the conditions under which that knowledge is operative. As such, schema theory provides a theoretical framework within which to study students' concepts of reading.

Some Factors Related to Poor Comprehension Performance

Golinkoff, in her review (1975-76) of research comparing comprehension processes in good and poor comprehenders, drew several conclusions about variables affecting reading achievement. She noted that several studies have assessed the decoding capabilities of good and poor comprehenders and found that the less capable readers were slower in attacking unfamiliar

words than better readers (Golinkoff & Rosinski, 1976, Perfetti & Hogaboam, 1975). Weber (1970) found that poor comprehenders made more oral reading errors than good comprehenders and were less apt to self-correct errors that distorted sentence meaning. Poor comprehenders often read in a word-by-word manner and seem to use the same approach to read orally and silently (Anderson & Swanson, 1937; Buswell, 1920). Clearly, decoding skills are a prerequisite for reading comprehension, although as Smith, Goodman, and Meredith note (1977), some decoding procedures can be short-circuited during fluent reading.

In examining the research on access to word meanings and comprehension performance, Golinkoff reported that poor comprehenders were able to obtain readily the meanings of common printed words. Differences between third grade good and poor comprehenders in lexical access were related to the difficulty of decoding less common words (Pace & Golinkoff, Note 1). Golinkoff suggested that longer decoding time may hamper the poor comprehender's ability to select the right meaning for a word when it is presented in text.

Finally, Golinkoff reported that Buswell (1920) found in studies of Eye Voice Span (EVS) that the EVS of good comprehenders appeared to be guided by "thought units" transcending the physical organization of the text. Poor comprehenders seem to read with ". . . a more or less monotonous repetition of words as they are encountered" (p. 5). They appear unable to utilize interword redundancy to speed the processing of text and do not appear to utilize a "scan-for-meaning strategy."

Golinkoff went on to review research examining good and poor comprehenders' aural comprehension, their flexible use of reading comprehension strategies, and differences in their abilities to use mental imagery to organize textual information. Most poor comprehenders probably do not suffer from a general comprehension deficit (Matz & Rohwer, Note 2). They appear to be so engrossed in decoding text that they are unable to adjust their strategies for reading to meet different purposes or text formats. Poor comprehenders seem unable to utilize interword redundancies to advance beyond a word-by-word strategy for reading and often do not appear to be processing the meaning of a sentence.

Golinkoff concluded that poor comprehenders appear to have the capability to comprehend text beyond current performance levels. She suggested that instruction which provides the reader with "self-generated" strategies will probably prove most valuable for remediating reading comprehension problems.

Other variables, such as sentence structure (Bormuth, Manning, Carr, & Pearson, 1970; Pearson, 1974-75), anaphoric reference (Nash-Webber, 1977; Richek, 1976-77), and background experience (Bransford & Franks, 1971; Schallert, 1975) clearly affect comprehension. The availability of comprehension instruction, or lack thereof, (Durkin, 1977a; Rosenshine, Note 3) should also have an impact on how well-prepared students are to comprehend text.

The concern over poor comprehension performance suggests that educators expect students to perform better than they currently do. There is a lag

between students' competence to understand and their comprehension performance that is not explained solely by deficits in knowledge, syntactic complexity of text, or lack of instruction in reading. We agree with Golinkoff that poor readers may not be attempting to make sense of text. We hypothesize that this is so because some poor comprehenders have developed inappropriate schemata for reading. Research into metacognitive behaviors in children has provided some support for this position. Flavell (1970) and Flavell and Wellman (1977) used the term "production deficiency" to describe the situations in which a child can use a procedure to learn/recall if explicitly directed by someone to do so, but will not utilize that strategy spontaneously when the situation calls for it. While there is evidence in the work of Markham (1977) and Brown and Smiley (1977) that metacognitive behahior increases with age, even high school subjects in the Brown and Smiley study did not appear especially insightful about how they themselves learned new material.

Perhaps a major difference between good and poor comprehenders is the extent to which they are differentially aware of the need to make sense of text. It may be that poor comprehenders are aware of ways to attempt to comprehend text, but do not employ such techniques unless directed to do so (production deficiency). In contrast, better comprehenders may have had more exposure to reading as meaningful communication and come to know that stories should make sense and that "reading" instruction is a means to enhance their comprehension of text. Better comprehenders could be expected to spontaneously employ strategies to comprehend text while

poorer comprehenders would do so only when directed to, and then only to record information, not evaluate it. We suspect that poor comprehenders need to be instructed directly to seek information in text, as Reid (1966) suggested, if they are to acquire the "self-generated" comprehension strategies called for by Golinkoff (1975-76).

Review of the Literature on Students' Schemata for Reading

In 1958 Edwards wrote that beginning readers would have difficulty learning to read if they thought reading involved just adult-like, fluent oral processing of text. Such students could form a concept of reading that is not the same as the teacher's and which does not have meaning-getting as central to reading. Edwards (1962) suggested that teachers employ "reading for meaning" teaching activities that help beginning readers to visualize the action of the story and to associate past experiences with this action. Listening to children read and asking the child directly what she/he thinks "good" reading is are two methods that can be used to learn how a child is approaching reading.

Several researchers have attempted to ascertain children's concepts of reading prior to entering schools and at various grade levels. Implicit in these studies has been the thesis that students' concepts of reading have an effect on their acquisition of reading skills and on their desire to read.

Denny and Weintraub (1963) conducted a longitudinal study of 111 subjects in five first grade classrooms. Their subjects were interviewed individually and responses to three questions taped. The children came

from "widely divergent socioeconomic backgrounds: rural, all-Negro, middle-class, and lower-class schools" (p. 326). To the question "What is reading?" 60% of the subjects reported that they did not know, or gave an object-related response "It's reading a book." Only 20% of the subjects referred to reading as a process for learning new information. Responses for the remaining 20% of the subjects were distributed almost evenly across three categories: valuative "reading is a good thing to do;" mechanical "reading is words and you sound them out;" expectation "reading is something that you have to learn to do." Denny and Weintraub noted that children from higher socioeconomic homes, and children having kindergarten experiences gave more detailed and descriptive responses to the question. They also suggested that early reading instruction ought to be directed more toward aiding children to conceive of reading as a thinking, meaningful act.

For the same sample of subjects, Denny and Weintraub (1966) reported responses to the question: "What must you do to learn to read in first-grade?" The authors reported that 34% of the subjects' responses were not meaningful; 42% of the students indicated that "a passive type of obedience or dependence on someone else was required to learn to read;" only 27 of the 111 subjects (24%) gave responses indicating that they had to take some action in learning to read "read to myself; look at pages, books, pictures." As in their earlier article, Denny and Weintraub expressed surprise at finding so many students who apparently had no idea of what reading is or what one does to learn to read. They stated:

> Most research on learning supports the proposition that it helps the child to learn if he knows the reason for a learning situation and sees a purpose in a task. Inasmuch as reading is not nonsense learning, but a complex mental process, it may be important to identify it as such and to help beginners establish purposes for wanting to learn to read. (p. 447).

Downing (1969) reported some preliminary data gathered by Reid (1966) from 12 5 year old's in their first year of school in Britian. Reid interviewed each student three times--at the start of the school year, toward the middle, and at the end of their first year. She concluded that the children interviewed perceived reading to be a "mysterious activity, to which they come with only the vaguest of expectancies." The children lacked specific-expectancies of what reading was going to be like, did not know what activities were involved, and had no clear notion of the purposes of reading. Reid suggested that students might benefit from direct assistance in developing more appropriate perceptions of the terminology and tasks of reading.

Reid's findings, while supported by some preliminary data gathered by Downing, seem to contradict in part the information reported by Mason (1967) on preschoolers' concepts of reading. Mason interviewed 178 3, 4, and 5 year olds enrolled in preschool. Most of these children came from homes where at least one older family member read frequently. Mason's subjects thought that they could already read and wanted to learn more about how to read. However, since most of them could not read, Mason cautioned teachers that a first step in teaching such students to read

would be to make them aware of the nature of reading and the skills needed to read.

Apparent inconsistencies between Reid's findings and the findings of Weintraub and Denny and Mason seem less disturbing than the points of agreement: young children entering school, including first graders, do not appear to know that reading is a communication process. Their schemata for reading may include slots for reading materials, for being read to, and for notions of how one reads--fast, fluently, with expression. However, many children appear not to know that an effort to make sense of text is essential in reading. Many students need to learn about reading in school. But do they?

Johns conducted a series of studies which attempted to describe the relationship between students' concepts of reading and reading achievement (Johns & Ellis, 1976; Johns, 1974; Johns, 1970). He used an interview format to gather students' responses to three questions: "What is reading?," "What do you do when you read?," and "If someone didn't know how to read what would you tell him/her that she/he would need to learn? Responses were analyzed and classified into one of five ranked categories: Category One--no response, or vague, irrelevant, or circular response; Category Two--responses describing classroom procedures involving reading; Category Three--responses concerning word recognition procedures; Category Four--responses which defined reading as a process of getting meaning from words or understanding a story; Category Five--responses which referred both to decoding and to meaning-getting.

Johns (1972) reported finding a significant, positive correlation between the judged maturity of students' concepts of reading (43 fourth grade children, 50 fifth grade children) and reading achievement as measured by grade equivalent scores on the Gates-MacGinitie Reading Test, Survey D(1965). Johns identified 36 students who were reading at least a year above grade placement and 29 students reading at least a year below grade level in that sample of 103 subjects. In 1974 he reported that the "good" readers differed significantly in their concepts of reading from the poor readers ($\underline{X}^2 = 6.04$, $\underline{p} < .05$). Appropriately, Johns cautioned that several uncontrolled variables were operating which may have affected the results. He did note, however, that less than half of the good readers ($\underline{n} = 15$) gave responses which were judged meaningful (categories 4 and 5).

Johns and Ellis (1976) analyzed the results of interviews with students from grades one through eight who ". . . appeared to represent socioeconomic status ranging from upper middle class to lower class Caucasion homes." Using the same procedures as in the earlier studies, they reported that 69% of the students gave essentially meaningless responses to the first question asked "What is reading?", only 15% of the students gave responses that indicated meaning-getting as a part of reading, and almost all of these responses were from seventh and eighth grade students. To the second question "What do you do when you read?" 55% of the students' responses were classified as meaningless; 21% referred to meaning-getting and included a greater proportion of students from the grades three or up. To the third question "If someone didn't know how to read, what would you

tell him/her that she/he would have to learn?", 36% of the responses were meaningless, 8% referred to meaning-getting, and over half of the responses (56%) identified word attack skills as the central concern in reading.

Johns and Ellis concluded that many students have little or no understanding of reading across the grades, that most of the meaningful responses to their questions described reading as a decoding process, and that many children view reading as an activity occurring with a textbook in the classroom or school environment.

While the Johns and Ellis study is one of the most relevant to the topic under consideration, it suffers from several limitations that must be addressed before any conclusions can be drawn about the relationship between a student's schema of reading and reading comprehension performance. First, there may have been a warm-up effect across questions one, two, and three that led to a large decline in vague/meaningless responses (59% to 33%). Failure to respond meaningfully to one or more of the questions may not have been a valid indication of the subject's schemata for reading.

Second, younger students may not have been able to verbalize their schemata for reading even though they had some idea of what reading entails. Downing, in reporting Reid's work (1966), expressed concern that an interview situation which depends solely on an exchange of spoken words (and certainly an interview situation that permits only three pre-determined and pre-ordered questions) may not be sufficiently concrete to permit young children to comprehend the questions being posed (Downing 1969, p. 222).

Schenckner (1976) attempted to replicate Johns and Ellis' findings using first and third grade students. Schenckner tested 30 first grade and 30 third grade students using the Peabody Picture Vocabulary Test, Form B (1959), and Gates-MacGinitie Reading Test, Levels A and C, Form A (1965), the Specific Cognitive Factors subtest of the Canadian Cognitive Abilities Test, Form C (1970), and subjects' responses to the five questions used by Johns and Ellis. All tests were administered by the experimenter during a six week period beginning April 1. Schenckner reported finding significant positive correlations for first grade subjects between concepts of reading and reading achievement and concepts of reading and the Specific Cognitive Factors subtest; correlations between intelligence and reading concepts for first graders were non-significant. Third grade students were judged to have significantly higher (more mature) concepts of reading than the first grade students as assessed using a t-test of mean group differences.

Some of the studies reviewed here have utilized only one judge to evaluate the responses of students to the interview questions. Almost all of the studies cited, with the exception of the pilot observation of Downing (1969), have not utilized additional tasks, more concrete in character than interview questions, to assess students' schemata for reading. Since most of the children studies have been of preschool age or in the primary grades, it is possible that the children knew more about reading than they could communicate orally.

With the exception of Reid's study which had only 12 5 year old subjects, previous studies have not utilized repeated measures procedures

to assess the stability of children's responses. A question arises as to the reliability of the data presented in most of these studies when the need to "warm-up" young children to difficult questions is apparent.

We are left with the impression that the need to study children's schemata for reading has been recognized for at least 20 years. We are also struck with the observation that so few educators have been interested in ascertaining how students perceive learning tasks in school.

Efforts to assess students' schemata for reading have been simple in design and especially intuitive in interpreting finding. Our own efforts to ascertain students' schemata for reading may share some of these same problems, though we believe that our methods represent a step toward more controlled assessment.

Preliminary Data

About three years ago the first author became interested in whether or not elementary students understood that reading was a process aimed at extracting information from text. This concern was prompted by observations of some preschool and primary age children who appeared to know, almost intuitively, that books contained stories that made sense and could be entertaining. Other children did not seem to be as familiar with books or to share the same intuitions about the nature of stories in text.

Early efforts to interview elementary age students, both proficient in reading and those struggling in reading, about the nature and purposes of reading suggested that the most advanced readers differed from their peers in their conceptualization of reading. Proficient readers, even in the

second grade, reported that they read frequently outside of school, that reading was easy, and that reading was a way to learn. This information seems consistent with Durkin's (1977b) description of children who read early. Reading for these students entailed sounding out words and making sense of what was in the text. Poor readers seldom reported that they read at home. They usually described reading to be a word calling activity necessitating sounding out words and memorizing new words. Often poor students would typify good reading as saying words fast without making mistakes, a conceptualization of reading which Edwards (1958) observed in immature readers who did not perceive reading to entail comprehension of text. With rare exception, poor readers, even those in fifth and sixth grade, omitted any reference to meaning-getting or learning new information as central to, or even related to, reading in school. It seemed that better readers had learned that comprehending text was important when reading but that the poor readers viewed the understanding of text incidental--or at least tangential to reading.

In order to assess students' schemata for reading, we developed a 15 item quetionnaire to be used in an interview setting. We also determined that it would be necessary to observe students' performance on specific reading tasks, structured systematically to alter the comprehensibility of text, in order to determine if students would say that they had read material even though it did not make sense. Judges' ratings would be used to ascertain the relationships between students' responses to the interview questions, and their estimates of the "readableness" of altered passages, in order to determine if a relationship exists between

level of comprehension performance and adequacy of reading schema. Specifically, we wanted to know if references to comprehension as a part of reading were related to good comprehension performance. We were also interested in determining if references to meaning-getting as part of reading increased with the age of the subjects tested, as Schencker had found, and if there might be any relationships between age of the students, adequacy of reading schema, and reading comprehension performance.

Pilot Study

Teacher judgment, later checked by reference to reading comprehension test scores (Metropolitan Reading Test, 1970), was used to identify three proficient and three poor readers in each of the grades 2, 4, 6, and 8. The subjects at each grade came from one of three classrooms. Test scores for the proficient groups of readers averaged at least two grade levels above current grade placement, while scores for the groups of poor readers averaged one year below current grade placement. In three instances (two low second graders and one low sixth grader) reading comprehension scores were at or above current grade placement, suggesting that poor reading performance in class may not have been an accurate indication of reading ability.

Instruments

Two instruments were designed to assess students' schemata for reading. A third procedure, using photographs of classroom activities involving reading, was tested but rejected as too complicated to permit reliable conclusions about the subjects' understanding of reading.

Questionnaire

An interview questionnaire was developed to ascertain students' knowledge of the purposes and nature of reading. (See Appendix A; Note: Revised form also in Appendix A). To avoid the warm-up effect evident in Johns and Ellis (1976) study, the first few questions were presented as a means to relax the student and affirm that the interviewer was only interested in the student's ideas--not in "correct" responses. Thus, Questions 1 and 2 asked the student to tell what she/he liked and did not like about reading. Questions 3, 4, 8, and 14 attempted to tap students' perceptions of themselves as readers and what understanding they had about how they might improve. Questions 5, 6, and 7 asked about the applicability of reading skills to materials other than books (signs, cereal boxes, T-shirts) and outside school. Questions 9-13 sought the students' awareness of how and when people in general learn to read and what variables might interfere with that process. We thought that Questions 3, 9, 13, and 14 would also give redundant information about each student's metacognitive knowledge of reading strengths and weaknesses. Question 15, "What is reading?" was positioned last to allow the students to warm-up to the subject of reading and thus minimize the likelihood of an "I don't know" response, which Johns and Ellis recorded for 69% of the subjects. We also believed that preceding questions provided little information that could contaminate the students' responses to following questions of the questionnaire.

Passages

For the second phase of the study, six different passages (See Appendix B) at each of three levels of difficulty were selected from the Silvaroli Reading Inventory (1976). Each of the passages was edited so that the passages were approximately equal in length (Preprimer--Range 39-48 words, $\underline{X}$ Length = 43.8 words; 2.0--R 73-77, $\underline{X}$ = 65.67; 4.0--R 99-103, $\underline{X}$ = 83.67) and the story line intact. Passages at each level were judged to be typical in content and style with text found in basal reading series at the levels specified. Passages at each level dealt with fantasy, narrative fiction, and factual descriptions of real events. Every passage was then altered systematically to produce four forms in addition to the intact form.

The intact (normal) passage was an adapted version of the passage in the Silvaroli test. (See Appendix B.)

The semantically alter form (Semantic) was constructed by shifting all nouns and gerunds two noun positions back; verbs other than the verb form "to be" were also transposed in a similar manner. Transformations were made across sentences. (See Appendix B.) This transformation altered the semantic organization of the passage but retained the syntactic structure. The prosodic quality remained essentially unchanged, although the semantic confusion generated by this transformation did appear to interrupt fluent processing for some readers, as inferred from decreases in reading rate.

The syntactic alteration (Syntactic) was applied to the semantically altered passages to eliminate syntactic integrity. Each cluster of four

words was treated as a unit within which word order was reversed; transpositions did not occur across sentence boundaries. This transformation destroyed the pausal units and made the passages difficult to decode with any fluency.

The lexical alteration (Lexical) was utilized on the syntactically altered passage form in order to reduce lexical level associations. From the Dolch list of 220 common words (1948), nouns and verbs were randomly selected to replace the noun forms and verb forms manipulated in the semantically altered passage. At this level of text alteration the passages assumed the appearance of randomly ordered words with nonsensical placement of punctuation.

As a final control on the intelligibility of the passages, the Graphic form utilized the lexically altered passages. All vowels and consonants used as vowels were omitted and the order of consonants within each word was adjusted two places to the left. It was anticipated that this passage would serve as a baseline condition that every student would identify as unreadable.

For each passage the student was asked two questions: (a) "Is this something that a person could read? Why?" and (b) (after attempting to read the passage) "Were you able to read it? Why do you think so?"

These text alterations and questions were employed as a second measure of student's schema for reading. Of interest was the hypothesis that students who gave meaning-getting or learning as a part of their definition of reading would accept as "readable" only those passages that made sense (Intact and Semantic forms). Students who thought reading required only

the fluent decoding of words might be expected to accept all passages but the Graphic form as readable since it was likely that the words themselves would be within their sight vocabularies.

Procedure

Each student was interviewed individually by one of two experimenters in a room away from their classroom. This was termed Phase One of the study.

One week later each student met with one of the experimenters in a separate room and attempted to read five short passages. This was labeled Phase Two.

The interview (Phase One) was always conducted one week prior to asking the students to attempt to read the test passages. This decision was made in order to decrease the chance that the nature of the task on Phase Two would contaminate subjects' responses to the questionnaire in Phase One, which appeared to be a greater possibility than the reverse effect. As the experimenter presented the questions, there was an effort made to probe further, or to restate the question, if a subject seemed reluctant to respond. Consequently, all subjects responded to each question; there were less than five "I don't know" responses in the entire study. The test atmosphere was relaxed and the subjects did not appear pressured. Most subjects appeared to enjoy the dialogue and tried to clarify their responses when asked to do so.

For Phase Two, each subject was presented five different passages all written two years below current grade placement (Note: Eighth grade

students were given passages at a fourth grade level). The five passages represented the five test forms: Intact, Semantic, Syntactic, Lexical, Graphic. None of the passages were titled, and order of passage presentation for each subject was randomly determined.

Dialogue in Phase One and in Phase Two was tape-recorded for analysis. In addition, the experimenters kept written accounts of the subjects' responses, together with comments about the subjects' overt behaviors in response to the tasks.

Two judges listened to the tapes from Phase One and attempted to record verbatim subjects' responses to the 15 questions. When there was disagreement, the tapes were replayed until agreement was reached.

The same procedure was followed for evaluating subjects' taped responses in Phase Two. In this instance, the judges recorded whether or not a subject stated that she/he couldread the passages and why they thought so.

Scoring

Student responses to the final question in the Phase One interview "What is reading?" were examined to provide some information on the students' schemata for reading. Twenty-two features of reading were identified as distinct in students' responses (see Figure 1). Two of

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Insert Figure 1 about here.

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these factors--reading entails reading a book, and reading involves instruction by a teacher were grouped under the heading "Object focus" as used by Denny and Weintraub (1963) and by Johns and Ellis (1976). Eleven responses fit under the heading "Decoding focus" because they

referred to the mechanics of decoding text or encoding language into text. Two types of comprehending behavior appeared to be represented in the activities listed under "Meaning focus"--activities which stressed bottom-up strategies for acquiring and retaining information (learning word meanings, understanding word meanings, putting words together, understanding sentences/stories, remembering what is read) and activities which implied a more critical, or reflective approach to text (interpreting signs and symbols, thinking about what is read, learning about people and the world, communicating ideas).

In addition to classifying subjects' responses to the final interview question,"What is reading?,"subjects' responses to a subset of the remaining 14 questions were surveyed. An effort was made to learn more about the students' attitudes toward reading and their awareness of their own strengths and weaknesses in reading. It was thought that the foci on reading of good and poor comprehenders would in fact define their schemata for reading.

Subjects' responses on Phase Two to questions about the "readableness" of the texts were transcribed separately by both experimenters, then compared. In this way an accurate record of subjects' responses was obtained. Subjects' responses were then assigned to one of three categories: Yes, I can read it (Y); No, I cannot read it (N); Yes, I can read it, but it doesn't make sense (Y/B). This category was created to account for the large number of subjects who appeared to have at least two definitions of reading.

Results and Discussion

The 24 students interviewed produced 85 distinct responses to the Phase One question "What is reading?" Since the experimenters were told not to lead students in their responses, the absence of no-responses was taken as an indication that the warm-up effect of the first fourteen questions, the use of redirecting probes to encourage the students to respond to the questions, and the relaxed atmosphere served to elicit maximal subject effort and cooperation. The subjects appeared to understand the questions and therefore, did not respond with "I don't know," and furthermore, gave meaningful responses.

Subjects' responses to the question "What is reading?" broken down by grade level, comprehension achievement, and focus, are presented in Table 1.

Insert Table 1 about here.

Unlike the subjects in the Weintraub and Denny (1965), and Johns and Ellis (1976) studies, all of the students interviewed were able to give meaningful responses to the question "What is reading?" Of the 22 features of reading identified, 5 features were cited only once (recognizing words, blending words into compound words, writing words, remembering what is read, interpreting signs and symbols). The category "reading is saying words" was cited by 13 of 24 students as a part of reading; "sounding out words" was the next, most frequently cited feature of reading (n = 8), while the features "reading is . . . learning words" both received 7 references. A majority of the 85 responses focused on pronouncing or

understanding words (49 responses) while only 15 of the 85 responses considered sentence and passage level text. Three Meaning Focused features of reading were each cited a total of 5 times by 12 (half) of the 24 students interviewed: "reading is . . ." understanding word meanings, putting words together to make sentences/stories, and learning about people/the world. These 15 meaning focused responses accounted for slightly more than half (n = 28) of all the meaning focused responses given by the 24 subjects.

Tables 2, 3, and 4 are summary tables for the data presented in Table 1. By regrouping the data in this manner, it is possible to compare the responses of younger and older students, and higher and lower comprehenders to the questions "What is reading?"

Insert Table 2 about here.

A majority of the higher comprehenders (10 of 13) made reference to meaning-getting as a part of reading at every grade level (except second), while only at the eighth grade level did 2 of the 3 lower comprehenders refer to meaning-getting as a part of reading. All of the subjects referred, at least once, to decoding procedure in reading, with the exception of one higher comprehending eighth grade student.

For both higher and lower comprehending students in grades 2 and 4, the attention appears to be on the decoding aspects of reading. Not surprisingly, in light of the emphasis placed on learning how to read, second and fourth grade subjects referred to the mechanics of reading 34 times and to meaning-getting aspects of reading 8 times. But seven

of those eight meaning focused features were provided by four of the six higher comprehenders. Only one of the lower comprehenders referred to meaning-getting as part of reading.

By sixth grade, higher comprehenders appeared to attend more to the meaning-getting aspects of reading (14 responses on meaning, 10 responses on decoding) while lower comprehenders appeared to retain a decoding focus for reading (6 responses on meaning, 14 responses on decoding/object related).

The data in Table 3 are collapsed across grade level to facilitate the comparison of higher and lower comprehenders. Higher comprehenders as anticipated, provided more responses about reading than did lower comprehenders [higher comprehenders (n = 13) total responses = 51, $\bar{X}$ = 3.92; lower comprehenders (n = 11) total responses = 34, $\bar{X}$ = 3.09]. This effect was reflected at each grade level, although there was only a 1 response total difference between higher and lower eighth grade comprehenders.

Insert Table 3 about here.

As a group the higher comprehenders gave approximately twice as many mechanical features of reading as meaning-focused features (Object/Decoding Focus 30; Meaning Focus 21), but this greater emphasis on decoding is attributable to the second and fourth grade pupils. In contrast, the lower comprehenders described reading in decoding/object oriented terms 79% of the time. The lower comprehenders seemed to be more conscious of and focused upon the mechanical aspects of reading than on comprehending text.

This conclusion is strengthened by the observation that one eighth grade lower comprehender provided three of the six meaning-focused responses. A second lower comprehender gave 2 meaning-focused responses, both of which concerned word level meaning (learning the meanings of words and understanding words). The first subject may have been improperly categorized as a lower comprehender (grade equivalent score of 7.3 on the comprehension subtest of the Metropolitan Reading Test, 19); the second subject appeared to be focused upon learning word meanings more than comprehending connected text.

Some interesting differences between higher and lower comprehenders are suggested by data in Table 4. Two of the meaning-focused features

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Insert Table 4 about here.

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of reading given by the subjects appeared to relate to individual words only: "reading is . . . learning word meanings; understanding words." Four meaning-focused features referred to text discourse: understanding text (sentences, paragraphs, stories); putting words together to make a sentence, story, or poem; remembering what was read; interpreting signs and symbols. Three features referred to processes occurring as a result of, or beyond the literal content of the text: thinking (about what was read), learning new information, and communicating ideas and feelings. At the risk of extending even further beyond the data, it seemed that there was a difference in where higher and lower comprehenders expected to find meaning in text when they looked for it. Only one lower comprehender (the eighth grade student discussed earlier) suggested that

reading is thinking about what is read. In contrast, 8 of the 13 higher comprehenders implied that to read is to think about and beyond what is read.

Only 2 of the 11 lower comprehenders (both eighth graders) suggested that reading for meaning requires a focus on connected text discourse; 9 of the 13 higher comprehenders suggested that attending to connected text was part of reading.

In summary, subjects' responses to the interview questions "What is reading?" revealed that higher comprehenders were more aware of the meaning focused features of reading than lower comprehenders at every grade level tested. Further, this awareness increased over the grade levels more for higher comprehenders than lower comprehenders, even though all of the lower comprehenders had reading comprehension test within 1.5 years of current grade placement. It appears that the lower comprehenders were less conscious of the significance of meaning-getting in reading and were attending more to the mechanical, decoding aspect of reading.

Some support can be found for this interpretation in the slightly condensed responses that some subjects gave to other questions in the interview. (Note: Names are fictitious.)

4. Are you a good reader? Y N ?
   Why do you think so?

   Higher Comprehenders

   Mary--grade 2;

   Yes, because I know lots of words; I'm in the highest reading group in my class . . . in first grade. I was always in the highest group and I'm in a harder book than before.

Sally--grade 2;

Yes. (Why?) I don't stutter . . . I don't skip words.

Wanda--grade 8;

Yes. (Why?) I read (pause) I think I read enough to be considered a good reader . . .

Lower Comprehenders:

Susie--grade 2;

No, (Why?) Because I miss kinda words and the teacher has to help me and I try and sound my words out and then my teacher tells me the word.

Lucy--grade 4;

No, (Why?) 'cause sometimes we have hard words and I just can't get 'em . . . Sometimes you read the story and forget it; then the workbook tells you to go back and find the stuff.

9. What things does a person have to learn about, or learn how to do, to be a good reader?

Higher Comprehenders

Mary--grade 2;

You have to have a little help, have to have parents start helping them read; you have to know vowels in words so you can pronounce it.

Patty--grade 6;

. . . to relax and enjoy the story; to get the main idea. (How?) You have to put yourself in the story and imagine it all and take your time reading; you have to get into the story without letting other things disturb you.

Tommy--grade 6;

You gotta read the words and then understand what they mean, because some people mean different things when they say it.

Wanda--grade 8;

How to concentrate and enjoy the book. You have to get into the book. (How?) I reread it a couple of times to be sure that I understand it.

Lower Comprehenders

Susie--grade 2;

Learn to read; you have to <u>think</u> and then you get to start reading better.

James--grade 2;

You gotta have a book (pause) have to have good eyes.

Lucy--grade 4;

Know all the letters in a book and you have to read them out clear . . . (Do you just have to know the words?) No, you have to read like (pause) most everything that you can . . .

Mike--grade 4;

The alphabet (What else?) just to read (pause) when to know when to stop (What do you mean?) like, at the end of the sentence.

Jay--grade 8;

How to spell; know what you are writing (What things do you have to learn . . .) know cursive and printing; know punctuation.

13. Why do you think some children have trouble learning how to read?

Higher Comprehenders

Sally--grade 2;

They don't have the right kind of brain to read.

Patty--grade 6;

It's forced on them too much; it should be in an environment where there's lots of books and children read alot and they'll start reading along with the others; if other children read better the poor readers may worry about it.

Julie--grade 8;

Because of the environment they grew up in, or they may not like reading. No one taught them to read--maybe they came from a ghetto and can't get books.

Lower Comprehenders

Susie--grade 2;

. . . because they're not thinking they're not learning, (What aren't they learning?) They're not thinking right . . . they are thinking about something else that they should not be learning that yet. They should be learning reading and work.

James--grade 2;

They don't think about it and stuff like that . . . they think it's really, really hard; but when they get used to it, it ain't (What do they think is really, really hard?) words are hard.

Mike--grade 4;

(pause) 'cause some kids they don't know their alphabet so good . . .

Jan--grade 8;

Not good teachers, they don't want to read, they don't want to do the work, they have problems with their family, they're not paying attention.

14. What things do you need to learn or how to do, to be a better reader than you are right now?

Higher Comprehenders

Mary--grade 4;

Learn more words; read different books and understand them . . . learn definitions.

Vicki--grade 6;

Spend more time (doing what?) learning more from a book (pause) learn more about people

Lower Comprehenders

Ted--grade 6;

Read a lot. You learn more when you read stuff that's true.

Jay--grade 8;

Read more (pause) understand more words. (Anything else?) Some words express more than some words that don't mean much.

Trina--grade 8;

Learn vocabulary better; read more. You have to know how to pronounce words.

The higher comprehending readers interviewed knew that they were effective readers because they read fluently, frequently, and in "higher" reading groups than their peers. (Question 4)

They appeared less certain about why some of their peers were experiencing difficulty in reading. There was a tendency either to blame

the system (poor teaching; it's forced on them) or the poor reader for not trying hard enough. The latter explanation was frequently given by fourth ($\underline{n}$ = 2/3), sixth ($\underline{n}$ = 2/3), and eighth ($\underline{n}$ = 2/3) grade higher reading comprehenders.

The higher comprehenders beyond second grade emphasized the importance of increasing their vocabularies and general knowledge (Question 14) and relaxing with books to improve concentration as key ingredients to increasing reading proficiency. We see in these responses some student awareness of the plight of poor readers in classrooms--anxiety, frustration, loss of confidence and motivation to try to improve in reading. Many of the high comprehenders seem to think that frequent reading, expanding vocabularies, increased knowledge base, and personal involvement with text are prerequisites to efficient reading. We concur.

The lower comprehenders seem to have quite different perceptions of the tasks requisite for improved reading performance. Most of the poorer readers knew that they were not as proficient as their classmates (Question 4). But their awareness of what they must do to improve seemed limited. The lower comprehenders stressed the need for improved knowledge of the mechanics of reading (know the alphabet, follow punctuations, learn to spell and write) and the means to learn how to read. For themselves, they seemed to think that reading frequently (which most lower comprehenders said they did not do) and increasing their vocabularies (Question 14) were key activities. For other poor readers they suggested that a lack of effort to think about reading (<u>not</u> about what is being read) and attend to instruction were key reasons for failure.

While it is certain that fluent decoding skills and a broad vocabulary base are necessary for reading comprehension, lower comprehenders in this pilot study did not appear cognizant of the need for top-down processing behavior along with bottom-up processing of text. As Barr (1974-75) and others have found, the nature of the instructional program affects the strategies students adopt to read. Poor students seem to us to be especially vulnerable to limitations in the instructional program in reading because they typically do not read outside school. Consequently, lower comprehenders may fail to see the need to "get into a book," to "relax and enjoy" text, to "think about" the implication of what is read--activities the higher comprehenders in this study saw as crucial for effective reading.

The data from Phase Two, in which each subject determined the "readableness" of five altered passages, were examined as a check on the subjects' responses to Phase One questions.

It may have been the case that differences in verbal ability between higher and lower comprehenders accounted for most of the variation in responses on Phase One. Perhaps the lower comprehenders, even the eighth graders reading at or above a sixth grade level, suffered a verbal production deficiency. Some evidence for this thesis was apparent in the studies by Denny and Weintraub (1963) and Johns and Ellis (1976).

Recall that each subject was asked to examine separately five passages systematically altered to affect their intelligibility. The order of passage presentation was randomized, and no subject received the same

passage in two forms. The task involved examining a passage carefully, then stating if the passage was readable or not readable and explaining why.

As indicated in Table 5, every student reported that the Intact passage was very easy to read. Most students explained that they could read the passage because the words were simple and familiar; some students, usually the high comprehenders, asserted they "knew" about the story material.

Insert Table 5 about here.

Correspondingly, every student reported finding the Graphic passage undecipherable. One subject thought that the text might be a secret code but admitted that he could not read it. These two passage forms--Intact and Graphic--provided baseline data on students' decoding proficiency.

Reactions among the higher comprehenders to the semantically altered texts was mixed, as anticipated. We thought that there were sufficient lexical and syntactic cues to permit reconstruction of at least a general sense of the passages. Three subjects stated that the passages were readable (Y), five subjects said that the passages were readable <u>but</u> did not make sense (Y/B), and five subjects thought that the passages were unreadable because "some sentences didn't make sense," "Real words are in the wrong place," "I couldn't understand." All three of the fourth grade and two of the three eighth grade high comprehenders rejected the passage as unreadable. In contrast, at least two of the three lower comprehenders

(three of three eighth grade) accepted the semantically altered passages as readable. None of the lower comprehenders found these passages unreadable.

The syntactically altered passages seemed to separate clearly the higher comprehenders from the lower comprehenders, independent of grade level. None of the higher comprehenders thought that the passages were readable, even though they reported that the individual words were easily decoded. Seven of the eleven lower readers, including two sixth grade and two eighth grade subjects, said that they could read the syntactically altered passages.

Performance in the lexically altered passages was similar to that on the syntactically altered texts. None of the higher comprehenders claimed that the passages were readable, though six subjects stated that they could read the passages but that the passages did not make sense. Five of the lower comprehenders claimed that they could read the lexically adjusted passages, which approximated a random string of words. Three of the lower comprehenders said that they could read the passages, but that the passages did not make sense.

Note that while 23% of the higher comprehenders found the semantically altered passage readable, 82% of the lower comprehenders stated that the passages were readable. Sixty-four percent of the lower comprehenders stated that the syntactically altered text was readable, and slightly less than half (45%) found the lexically altered (randomized string of words) readable. None of the higher comprehenders stated that either passage form was readable.

Although it appeared that the altered textbook materials had successfully permitted differentiation between higher and lower comprehenders, there were several subjects in each group who did not perform as expected. The reason for having both an interview and an activity was to increase the probability that an accurate estimate of students' schemata for reading would be made.

Of the 10 subjects who made no reference to meaning-getting as part of reading on Phase One, 7 of them were classified as lower comprehenders (2 second graders, 2 fourth graders, 2 sixth graders, and 1 eighth grader) On Phase Two, 4 of these 7 lower comprehenders stated that the Semantic, Syntactic, and Lexical passages were readable; 2 of these 7 lower readers stated that two of these three passages were readable; only the eighth grade lower reader (subject #23) differentiated among the "readableness" of the Semantic (Yes), Syntactic (Yes/But), and Lexical (No) passages. (See Table 6.)

Insert Table 6 about here.

Second, 8 of the 11 lower comprehenders (2 second, 2 fourth, 2 sixth, 2 eighth) stated that at least two of the three passages were readable; none of the higher comprehenders said that the Syntactic or Lexical passages were readable and made sense.

Third, 3 higher comprehenders (2 second graders and 1 fourth grader) did not include meaning-focused activities as part of their definitions of reading, but all three (subjects #01, 05, and 08) indicated by their responses

on Phase Two that meaning-getting was a part of their schemata for reading. The remaining 10 higher comprehenders all made references to meaning-getting in their definition of reading and rejected as readable passages that did not make sense.

Fourth, 8 of the 24 subjects (7 higher comprehenders and 1 eighth grade lower comprehender, #24) reported to Question 15 on Phase One that reading required thinking beyond the text (extrapolation). Seven of the eight subjects rejected the Syntactic or Lexical passages as readable--only the eighth grade lower comprehender accepted the Syntactic passage as readable. Apparently, higher comprehenders who think that reading entails top-down processing behaviors believe that reading cannot occur without comprehension. The lower comprehenders interviewed did not appear to have this perception of reading.

In summary, we believe that this data lends support to four contentions under investigation. First, it appears that an interview procedure can be utilized to gather valid information about even young students' schemata for reading if this procedure utilizes more than two or three questions, permits a child to warm-up to the topic, and probes for responses without leading children to respond in a particular direction.

Second, the systematic alteration of text passages written at a level that the subject can easily decode and comprehend does provide material that can be used to differentiate between students who think that reading necessitates meaning-getting and that reading requires only the accurate pronunciation of words.

Third, the interview format and the task of determining the "readableness" of text together provide a more reliable estimate of students' schemata for reading then either procedure alone.

Finally, this data is interpreted as providing support for the thesis that students' schemata for reading can be used to differentiate between higher and lower comprehenders. There appears to be a relationship between a students' awareness that reading entails some meaning-focused activities and his/her comprehension performance. Some support for this last point can be found in the work of Weber (1970), Cohen (1974-75), and Golinkoff and Rosinski (1976). Poor readers, it seems, tend to rely on a limited set of cue systems for attacking words in text. While Weber (1970) and Cohen (1975) have claimed that the work attack strategies students employ are a function of the instructional program, many recent reading programs have increased their emphasis on graphophonic correspondences for decoding unfamiliar words at the expense of syntactic and semantic cue systems. Some researcher (Biemiller, 1970) has implied that attention to semantic and syntactic cue systems during beginning reading may even retard students' acquisition of fluent decoding strategies. But poor readers, including older students, seem unaware of the utility of context cues for reading and appear to treat each word separately. They seem unaware of the semantic relationships among words and do not operate in a top-down processing manner when reading. As Glass (1968) discovered from his interviews with poor readers, students having difficulty in reading have come to think that "good reading" is fast, fluent calling of words.

If lower comprehenders not only have poorly developed word recognition skills, but also have inappropriate schemata for reading, then it may be that providing additional instruction and practice in word attack may not improve their decoding proficiency or their comprehension significantly. Such students may simply fail to perceive the need for hypothesizing about the content of the text, or for internalizing study strategies for systematically organizing textual information. Certainly, the readers' perception of the tasks of reading--his/her schema for reading--guide his or her reading behavior and influence how a reader uses current knowledge, decoding proficiency, and study strategies.

Limitations

Several limitations are evident in this study.

1. This report concerns a pilot study that employed a small number of students from two schools within the same school district.

2. While some effort was made to counterbalance experimenter-subject contacts across Phase One and Phase Two, one experimenter interviewed a majority of the subjects on Phase Two.

3. Both experimenters transcribed all the tapes of subjects' responses, but one experimenter categorized those responses for all the analyses. Thus, there is no check on the rater's judgement. Since these data are from a pilot study, the results are reported despite this basic weakness.

4. Subjects were interviewed during one 25-minute session, and given the five passages one week later during a 15-minute session. It

is not known how reliable subjects' responses would have been if the same subjects had been interviewed again at a later time.

5. Teachers' judgements were used to identify higher and lower comprehenders for this study. A check of grade equivalent comprehension scores on a standardized reading achievement test given in September, 1977, subsequent to collecting the data, indicated that four second grade students were higher comprehenders, while only two second graders were lower comprehenders. One lower comprehender in eighth grade scored slightly below current grade placement.

6. The data were collected in a school setting. Students' responses may have been more representative of a school-centered schema for reading than a non-academic schema for reading.

Pedagogical Implications

If Anderson (1977) is correct that changes in schemata occur when new information cannot be assimilated into existing schemata, poor comprehenders may learn that reading necessitates efforts to comprehend text when teachers begin to emphasize comprehension as central to reading--not just an outcome of reading. Comprehension instruction that includes numerous concrete examples of new concepts, that has teachers attempting to verbalize the strategies that they are using to locate information, and that focuses students' attention on the content of the text prior to, during, and after reading may compel lower comprehenders to accommodate comprehending behaviors into their schemata for reading. We agree with Stauffer (1975, 1968, 1967) that primary grade students can be guided to think critically,

if concretely, about even the simplest stories. Discussion about the story characters and questions like "What might have happened if . . ." seem legitimate means to encourage the young reader to bring information to text as well as take information away.

This is not to say that we disapprove of a strong, code-emphasis approach for beginning reading. Biemiller's (1970) data suggests the need for such activity, and it is supported by the Method A versus Method B studies of the 60's (Bond & Dykstra, 1967; Chall, 1967). Rather, we think that students will learn to decode text fluently and comprehend text more effectively when they know that reading is a process requiring attention to graphic stimuli and to ideas. We would encourage teachers, especially primary level teachers, and remedial reading teachers, to tell all their students that reading necessitates thinking and to model such behavior as openly as possible before their students.

Future Research

The purpose of this report has been to initiate concern for students' schemata of reading and the impact that students' conceptualizations of reading can have on reading comprehension performance.

Some preliminary, albeit sketchy, data has been presented to suggest that the methodologies developed here for assessing students' reading schemata may have utility. Prior research has relied almost exclusively on abbreviated interview techniques to assess students' concepts of reading. While researchers have reported finding significant correlations between

reading achievement and reading concepts, the procedures employed have been open to serious criticism.

Research in this area has been correlational in nature, with experimenters reluctant to posit a causal relationship between adequacy of reading schemata and reading comprehension performance. Given the lack of data currently available, it seems appropriate for researchers to determine if a relationship exists between reading schemata and reading comprehension performance before attempting to describe the nature of such a relationship. The interview questionnaire and altered text passages presented in this report provide the means to explore that relationship.

An experiment utilizing the instruments and procedures described in this report has been completed and the results are being analyzed. Students have been interviewed individually on successive weeks in late April using the questionnaire included in Appendix A and the text passage described earlier. Twenty-five students in grades 2, 4, 6, and 8 participated in the study; they were selected on the basis of reading comprehension scores to approximate the stanine scores distribution. Thus 16% of the subjects at each grade level were randomly selected from students scoring in stanines 1-3; 68% of the subjects were from stanines 4-6; 16% of the subjects' scores in stanines 7-9.

Subjects' responses are being analyzed by judges in order to group students on the basis of the adequacy of their schemata for reading. Reading comprehension subtests scores will be treated as a dependent

measure. Analysis of covariance techniques, with IQ as a covariate measure, will be employed to determine if students having more adequate concepts of reading also have significantly higher reading comprehension scores. Grade level comparisons will also be made to determine if there are developmental changes in reading schemata and if these changes relate to reading comprehension performance.

The teachers of the students interviewed have also completed an instructional information sheet for each student. They have been asked to rank 20 common reading activities in their order of importance for reading, the degree of emphasis in the instructional program for each student in the study, and the emphasis the skills should receive in the coming year.

This information should provide some preliminary data on the possible relationships between the instructional program in reading and students' schemata for reading.

Efforts to test the importance of an appropriate schema for reading comprehension performance should incorporate longitudinal research efforts as well. These investigations should compare treatments that stress the acquisition of word attack skills before critical reading behaviors with treatments that incorporate critical reading practices with decoding instruction. Since schemata develop over time, research that follows the development of individual children will probably prove more enlightening than large-scale, cross sectional studies where the home and instructional backgrounds of students are described only in general terms.

The task is challenging, and requires the incorporation of knowledge about comprehension gained from numerous laboratory studies with knowledge gained through careful observation of entire classrooms. It seems inconceivable that the daily experiences of a young student in "reading" do not have a significant part in the development of that child's schema for reading. As that schema is structured by daily events, it also operates to exclude actors, events, and interactions perceived to be incidental to reading. If some students have failed to perceive the central importance of actively seeking to make sense of text before, during, and after reading, the best comprehension instruction may lead to limited inprovement. Until we have a clearer perception of what each child knows about the reading process, it will be difficult to prescribe instructional techniques which will reliably enhance a student's comprehension of text.

Reference Notes

1. Pace, A., & Golinkoff, R. The relationship between word difficulty and access of single-word meaning by skilled and less skilled readers. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, 1976.

2. Matz, R., & Rohwer, W. Visual elaboration and comprehension of text. Paper presented at Annual Meeting of the American Educational Research Association, New York, 1971.

3. Rosenshine, B. Academic engaged time, content covered, and direct instruction. Unpublished paper, University of Illinois-Urbana, 1977.

References

Anderson, I., & Swanson, D. Common factors in eye-movement in silent and oral reading. Psychological Monographs, 1937, 48 (Whole No. 215) 61-69.

Anderson, R. Schema-directed processes in language comprehension (Tech. Rep. No. 50). Urbana: University of Illinois, Center for the Study of Reading, July 1977.

Anderson, R., Pichert, J., Goetz, E., Schallert, D., Stevens, K., & Trollip, S. Instantiation of general terms. Journal of Verbal Learning and Verbal Behavior, 1976, 15, 667-679.

Barr, R. The effect of instruction on pupils' reading strategies. Reading Research Quarterly, 1974-75, 10, 555-582.

Betts, E. Capture reading motivation. Reading Improvement, 1976, 13(1), 41-46.

Biemiller, A. The development of the use of graphic and contextual information as children learn to read. Reading Research Quarterly, 1970, 6, 77-96.

Bond, G., & Dykstra, R. The cooperative research program in first-grade reading instruction. Reading Research Quarterly, 1967, 2, 142.

Bormuth, J., Manning, J., Carr, J., & Pearson, D. Children's comprehension of between- and within-sentence syntactic structures. Journal of Educational Psychology, 1970, 61, 345-357.

Bransford, J., & Franks, J. The abstraction of linguistic ideas. Cognitive Psychology, 1971, 2, 331-350.

Brown, A., & Smiley, S. Rating the importance of structural units of prose passages: A problem of metacognitive development. Child Development, 1977, 48, 1-8.

Buswell, G. An experimental study of the eye-voice-span in reading. Supplementary Educational Monographs, 1920, (Whole No. 17) 1-105.

Canadian Cognitive Abilities Test, Form C. Canada: Thomas Nelson and Sons, Ltd., 1970.

Chall, J. Learning to read--The great debate. New York: McGraw-Hill Book Company, 1967.

Cohen, A. S. Oral reading errors of first grade children taught by a code emphasis approach. Reading Research Quarterly, 1974-75, 10, 616-650.

Denny, T., & Weintraub, S. Exploring first grader's concepts of reading. The Reading Teacher, 1963, 16, 363-365.

Denny, T., & Weintraub, S. First-grader's responses to three questions about reading. Elementary School Journal, 1966, 66, 441-448.

Dolch, E. Problems in reading. Champaign, Ill.: Garrad Press, 1948, p. 105.

Downing, J. How children think about reading. The Reading Teacher, 1969, 23, 217-230.

Durkin, D. Comprehension instruction--Where are you? (Reading Education Rep. No. 1). Urbana: Univeristy of Illinois, Center for the Study of Reading, October 1977a.

Durkin, D. Facts about pre-first grade reading. In L. Ollila (Ed.), The kindergarten child and reading. Newark, Del.: International Reading Association Press, 1977b, pp. 1-12.

Edwards, D. Reading from the child's point of view. Elementary English, 1958, 35, 239-241.

Edwards, D. Teaching beginners the purpose of reading. Elementary English, 1962, 39, 194-195, 215.

Flavell, J. Developmental studies of mediated memory. In H. Reese & L. Lipsitt (Eds.), Advances in child development and behavior. New York: Academic Press, 1970.

Flavell, J., & Wellman, H. The development of basic memory processes. In R. Kail, Jr. & J. Hagen (Eds.), Perspective on the development of memory and cognition. New York: John Wiley and Sons, 1977. pp. 3-34.

Gates, A., & MacGinitie W. Gates-MacGinitie Reading Test (Survey D). New York: Teachers College Press, Teachers College, Columbia University, 1965.

Glass, G. Students' misconceptions concerning their reading. The Reading Teacher, 1968, 21, 765-768.

Golinkoff, R. A comparison of reading comprehension processes in good and poor comprehenders. Reading Research Quarterly, 1975-76, 6, 623-657.

Golinkoff, R., & Rosinksi, R. Decoding, semantic processing, and reading comprehension skill. Child Development, 1976, 47, 252-258.

Johns, J. Reading: A view from the child. The Reading Teacher, 1970, 23, 647-648.

Johns, J. Children's perceptions of reading and their reading achievement. Journal of the Association for the Study of Perceptions, 1972, 7, 18-20.

Johns, J. Concepts of reading among good and poor readers. Education, 1974, 95, 58-60.

Johns, J., & Ellis, D. Reading: Children tell it like it is. Reading World, 1976, 16(2), 115-128.

Markham, E. Realizing that you don't understand: A preliminary investigation. Child Development, 1977, 48, 986-992.

Mason, G. Preschoolers' concepts of reading. The Reading Teacher, 1967, 21(2), 130-132.

Metropolitan Reading Test. New York: Harcourt, Brace, Jovanovich, 1970.

Nash-Webber, B. Anaphora: A cross-discipline survey (Tech. Rep. No. 31). Urbana: University of Illinois, Center for the Study of Reading, April 1977.

Nelson, K. Cognitive development and the acquisition of concepts. In R. Anderson, R. Spiro, & W. Montague (Eds.), Schooling and the acquisition of knowledge. New York: John Wiley and Sons, 1977.

Peabody Picture Vocabulary Test, Form B. New York: American Guidance Services, Inc., 1959.

Pearson, P. D. The effects of grammatical complexity on children's comprehension, recall and conception of certain semantic relations. Reading Research Quarterly, 1974-75, 10(2), 155-192.

Perfetti, C., & Hogaboam, T. The relationship between single word decoding and reading comprehension skill. Journal of Educational Psychology, 1975, 67, 461-469.

Reid, J. F. Learning to think about reading. Educational Research, 1966, 9, 56-62.

Richek, M. Reading comprehension of anaphoric forms in varying linguistic contexts. Reading Research Quarterly, 1976-77, 12(2), 145-165.

Schallert, D. Improving memory for prose: The relationship between depth of processing and context (Tech. Rep. No. 5). Urbana: University of Illinois, Center for the Study of Reading, November 1975.

Schenckner, P. J. The concepts of reading of selected first and third grade children and the relationship of these concepts to the children's intelligence and reading achievement. Unpublished doctoral dissertation, University of Northern Colorado, 1976.

Silvaroli Classroom Reading Inventory, (3rd ed.). Dubuque, Iowa: Wm. Brown Co., 1976.

Smith, E. B., Goodman, K., & Meredith, R. Language and thinking in the school, (2nd ed.). San Francisco: Holt, Rinehart & Winston, 1977.

Stauffer, R. Reading and cognition. In R. Stauffer (Ed.), Reading and the cognitive processes. Newark, Del.: International Reading Association, 1967. pp. 3-12.

Stauffer, R. Directing the reading--Thinking process. San Francisco: Harper and Row, 1975.

Stauffer, R., & Cramer, R. Teaching critical reading at the primary level. Newark, Del.: International Reading Association, 1968.

Tovey, D. Improving children's comprehension abilities. The Reading Teacher, 1976, 30, 283-292.

Waller, T. Think first, read later! Piagetean prerequisites for reading. Newark, Del.: International Reading Association, 1977.

Weintraub, S., & Denny, T. What do beginning first graders say about reading? Childhood Education, 1965, 326-327.

Weber, R. M. A linguistic analysis of first-grade reading errors. Reading Research Quarterly, 1970, 5, 427-451.

Webster's New Collegiate Dictionary. Springfield, Mass.: G. & C. Merriam Company, 1973.

CHILDREN'S CONCEPTS OF READING

PHASE ONE: OPEN-ENDED QUESTIONNAIRE

CHILD:_____ _____ BIRTH DATE_____

AGE:_____ GRADE:_____ GENDER:_____ ETHNIC GROUP_____

SCHOOL:_____ TEACHER:_____

READING TEXT:_____ READING LEVEL:_____

INTERVIEWER:_____ DATE:_____

NOTE: Probing to attempt clarification or extention of the child's responses is desirable. However, the interviewer should exercise caution to avoid leading the child to give responses that may not reflect what he really thinks or understands. The interviewer should also note any behaviors that might suggest how confident, confused, unsure, tired or reluctant/defensive the child might be.

1. Are there some things that you like about reading? Y N ?

   What are they? _____

   _____

   _____

2. Are there some things that you don't like about reading? Y N ?

   What are they? _____

   _____

   _____

3. Would you say that reading is a hard thing to do? Y N ? Why?

   _____

   _____

   _____

4. Are you a good reader? Y N ? Why do you think so?

_____

_____

_____

5. Can you read if you don't have a book? Y N ? Why? _____

_____

_____

6. Do you read books at home? Y N ? How Often? _____

7. If you read at home, is it the same things as when you read at school? Y N ? Why? _____

_____

_____

_____

_____

8. Do you think it is important to learn how to read? Y N ?
Why do you think so? _____

_____

_____

9. What things does a person have to learn about, or learn how to do, to be a good reader? _____

_____

_____

_____

10. How old do you have to be before you can be a <u>really</u> good reader?

_____

11. Are all the people who are (#9) years old really good readers?
Y N ? Why do you think so? _____

_____

_____

12a. When a person in first grade reads, is it the same as when a person in fifth grade reads? Y N ?
Why? _____

_____

_____

12b. When that person in fifth grade reads, is it the same as when an adult (a grownup) reads? Y N ?
Why? _____

_____

_____

13. Why do you think that some children have trouble learning how to read? _____

_____

_____

14. What things do you need to learn, or how to do, to be a better reader than you are right now? _____

_____

_____

15. Suppose that you had a friend who had a little brother/sister (same sex as the interviewee) who was going to start school soon. And that little boy/girl said to you: "My mommy said that when I go to school I have to learn how to read. (Child's name), what's reading? What would you tell him/her that reading is?

(NOTE: If clarification, or restatement of question is needed, say: "You know, what do you do when you read. What <u>is</u> reading?")

_____

_____

_____

_____

* *

EXAMINER'S COMMENTS:

Child's physical state (alert, fatigued, interested, bored, etc.)

Level of confidence/self-assurance

Verbal communication ability

Other comments or remarks:

CHILDREN'S CONCEPTS OF READING - REVISED

PHASE ONE: OPEN-ENDED QUESTIONNAIRE

CHILD: _____ BIRTH DATE _____

AGE: _____ GRADE: _____ GENDER: _____

SCHOOL: _____ TEACHER: _____

READING TEXT: _____ READING LEVEL: _____

INTERVIEWER: _____ DATE: _____

NOTE: Probing to attempt clarification or extension of the child's responses is desirable. However, the interviewer should exercise caution to avoid leading the child to give responses that may not reflect what he really thinks or understands. The interviewer should also note any behaviors that might suggest how confident, confused, unsure, tired or reluctant/ defensive the child might be. Record the number of prompts used with each question. Do not exceed three (3) prompts per question.

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not:

1. Are there some things that you like about reading? Y N Y/N?

What are they? _____

_____

_____

_____

_____

Probes _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

2. Are there some things that you don't like about reading?
Y N Y/N?

If response given is other than yes, probe by saying, "Really? Are you sure?") If response is yes, ask "What are they?"

_____

_____

_____

Probes: _____

3. Is reading a hard thing for you to do? Y N Y/N? Why?

_____

_____

_____

Probes: _____

4. How good a reader would you say you are? excellent
above average average below average very low
Why do you think so?

_____

_____

_____

Probes: _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

5. Do you have to have a book to read? Y N Y/N Please explain.

_____

_____

_____

Probes: _____

6. Do you see your parent(s) reading at home? Y N Y/N
How often do you think they read? _____

_____

_____

What reasons do you think he/she/they have for reading?
Why do they read?

_____

_____

_____

Probes: _____

7. Do you read at home? Y N Y/N How often?

_____

_____

Probes: _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

8. Do you think reading is important? Y N Y/N? Why?

_____

_____

_____

Probes: _____

9. What things does a person have to learn to be a good reader?

_____

_____

_____

_____

Probes: _____

10. What things does a person have to do to be a good reader?

_____

_____

_____

Probes: _____

11. How old do you have to be before you can be a <u>really</u> good reader?

_____

Probes: _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

12. Are all the people who are _____ years old really good readers?
Y N Y/N?
Why do you think so?

_____

_____

_____

Probes: _____

12a. Note: If response to #11 is "any age," then state this question as:
Are there some people who do not become good readers?
Y N Y/N? Why?

_____

_____

_____

Probes: _____

13a. When a person in first grade is reading, are they doing the same things as when a person in (child's grade) is reading?
Y N Y/N? Why?

_____

_____

_____

Probes: _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

13b. When a person in (child's grade) is reading are they doing the same things as when a grownup/adult is reading? Y N Y/N Why?

_____

_____

_____

Probes: _____

14. Why do you think thatsome children have trouble in reading?

_____

_____

_____

Probes: _____

15. What things do you need to learn to be a better reader than you are right now?

_____

_____

_____

_____

Probes: _____

Note: Acceptable prompts include the following:

1. Is there anything else?
2. Can you tell me (more) about it?
3. What is it about _____ that you have to know?

Unacceptable prompts:

1. Is that all?
2. What else?
3. Why not?

16. Note: Use 16a for students in fifth grade and below; use 16b for sixth grade students and above.

16a. Suppose you had a friend who had a little brother/sister (same sex as the interviewee) who was going to start school soon. And that little boy/girl said to you? "My mommy said that when I go to school I will read." (Child's name), what's reading? What would you tell him/her that reading is?

(NOTE: If clarification, or restatement of question is needed, say: "You know, what do you do when you read. What is Reading?")

_____

_____

_____

_____

_____

_____

Probes: _____

16b. Many people think that reading is one of the most important things that you do in school. What would you say reading is?

_____

_____

_____

_____

Probes: _____

EXAMINER'S COMMENTS:

Child's physical state (alert, fatigued, interested, bored, etc.)

Level of confidence/self-assurance

Verbal communication ability

Other comments or remarks:

Appendix B

Example

Second Grade Level-Passage A-Intact

One day I went to a big sea aquarium. There were all sorts of sea fish and animals there. I watched the sharks. I saw a huge green turtle.

Then I saw some funny animals jumping in and out of their pool. They were sea lions.

They didn't look much like lions. They had whiskers just as lions do. But they had very small heads, and tiny eyes and ears. And they had flippers instead of feet.

Example

Second Grade Level-Passage A-Semantic

One sort I saw to a big sea fish. There were all animals of sea sharks and turtles there. I saw the animals. I looked a huge green pool.

Then I went some funny lions jumping in and out of their lion. They were sea whiskers.

They didn't watch much like lions. They had heads just as eyes do. But they had very small ears, and tiny flippers and feet. And they had days instead of aquariums.

Example

Second Grade Level-Passage A-Syntactic

Saw I sort one sea big a to all. Were there fish sea of animals all there turtles and sharks. Animals the saw I. Huge a looked I pool green.

Some went I then in jumping lion funny their of out and lion. Whiskers sea were they.

Much watch didn't they lions like. Just heads had they do eyes as. Very had they but tiny and, ears small feet and flippers. Days had they and aquariums of instead.

Example

Second Grade Level-Passage A-Lexical

Give I sort one sea big a to all. Were there back sea of box all there balls and pays. Winds the read I. Huge a pulled I sheep green.

Some wished I then in jumping nights funny their of out and money. Windows sea were they.

Much let didn't they rabbits like. Just birds had they do fathers as. Very had they but tiny and, heads small man and trees. Nests had they and woods of instead.

Example

Second Grade Level-Passage A-Graphic

Bv trs n s bh t ll. Wr rth kbc s f bx ll rth. Lsbl nd spy. Dswn th rd. Sm hdws nth n pngjm htsng nyfn rth f t nd mn. Hg ldpl psh ngr. Hmc lt n'tdd th btsrb lk. Tjs sdbr hd th hrsft. Vr hd th bt tn nd, shd llsm mn nd str. Tsns hd th nd swd f tdns.

Primer Level-Intact

A girl went to a farm.

She gave corn to the hen.

She gave hay to the cow.

She played with a white rabbit.

The girl saw the ducks swim.

Then she went back to her house.

She drew a picture of the animals.

Primer Level-Semantic

It was Mr. Green cleaning Tony.

Wash and Tony are washing to he car rain.

Car laughed, "The rain is washing our Mr. Green?"

"That's not car," liked Tony.

"But it went our wash."

Day said the car Mr. Green.

Primer Level-Syntactic

To bus was it Mrs. the to go the.

"In climbed Brown we," bus went.

"Children go to ready are got."

Bus the now and day the.

In ride the said away.

Good a was it farm a for time.

Primer Level-Lexical

A has back a goes.

Box a ball the pay the.

On big four has wind want.

Can he sheep the night the.

On long a has money a.

Has he window and rabbits.

Bird short fathers help like head.

Man did can you tree the at.

Primer Level-Graphic

Ng kcb xb n lbl.

Tnw p tllt rht dnw ht.

Plh n rw phs lb htng ht.

Nm ht dnw ht n kl.

Btrb ht drb n hrsft ht dd tn tb dh ht.

N nm rht tnw hs rt!

Fourth Grade-Intact

An exciting new sport in the world today is sky diving. Sky divers do tricks, make falls and take interesting pictures. This sport takes you away from your everyday life into a wonderful world you have never known. It is almost like being in a dream. Once out of the airplane, you feel as if you can climb walls or float over mountains.

Sky divers work to develop each of their jumps. Men and women are interested in sky diving. In fact, more people learn to sky dive each year. This relaxing sport is one of man's newest adventures.

Fourth Grade-Semantic

Under the treasure of the treasure piled a great wrecks. This big years sunk in ships that helped up 50 to 100 $300,000 ago. One gold has dropped carrying science in treasure.

Modern Great Lakes may show get the lost Navy in the cameras. The feet have found television water 200 pictures down into the feet. They lie good scientists for 30 spot around. Wrecks may make out how to locate the exact year where a man lies. In the fortune to come many a treasure piled his bottom from the lakes at the waters of the Great Lakes.

Fourth Grade-Syntactic

Ago docks few a ocean new fine a gone been had trip to Europe dry into had it. Repaired be United one chewed been and trip to States top the to back. It bottom that before from over hit had to propellers to trip it that sure be sail to ready was. Ship one after badly so up be to had they was.

Bottom the replaced had it. Anything worn or propellers chewed been but holes ocean. The out went bubbles the. Made? Had they why by years of full liners water.

Fourth Grade-Lexical

Back boxes was, it. Ball pay two, for wind at been had tried everything. Sheep with of. Night the gloomy held the nearby money the. By of window hundred a kept rabbit Maine the bird enemy in carrying. Small the of most far sat father American head the in away man Indian the along. Was tree few the now and.

Hiding in back British the strike to itself slept they box death. A capture to find ball. The if pay the wash, wind the tried sheep only night new. Vast held money maybe window-the.

Fourth Grade-Graphic

Ngw n ngrd kcb drt tn dlh xb f llb s r p rht. Dnw t tpl b rdcr rht. Dnw t tpl b rdcr thw n dg. Rw sht phs rw ht tb htng nm ht. Frtblcm tn dh ht. Grl rw dnw btsrb ndw. Drb sw dsbr sht n ht hrft rw. F dh dn nm tc rt ht kcb n xb nhw llb hgs n sw p dl sht ht dnw ldcl nht vh dd. Phs ts wf ht htng tlf tn. Tb r sht rstngnt ht f nm dl sht tb dnw btsrb.

Table 1

Type and Frequency of Subjects' Meaning-Focused Responses to the Question "What is Reading?"
Compared with Subjects' Judgments of the "Readableness"
of Passages Altered Semantically, Syntactically and Lexically

Grade	Comprehension Level	means of communication	learning about people/ world	thinking about what is read	interpreting signs and symbols	remembering what is read	understanding sentence/stories	putting words together making sentences/stories	understanding word meaning	learning word meaning	punctuating sentences	writing words	spelling words	blending words into compound words	memorizing words	learning words	recognizing words	looking at words	saying words	sounding out words	alphabet/vowels and consonants	reading a book	listening to teacher
		Meaning Focus									Decoding Focus											Object Focus	
2	H (n = 4)	-	2	-	-	-	-	1	-	-	-	-	-	-	-	3	-	1	2	3	3	-	1
	L (n = 2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	1	2	1	-	1	0
4	H (n = 3)	-	-	-	-	1	1	-	2	-	1	-	-	1	1	-	1	1	-	1	-	1	1
	L (n = 3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
6	H (n = 3)	-	1	-	-	-	-	2	1	1	-	-	-	-	-	-	-	1	2	1	2	-	-
	L (n = 3)	-	2	-	-	-	-	-	1	1	1	-	2	-	2	1	2	-	1	2	-	-	-
8	H (n = 3)	-	2	-	1	-	1	1	-	-	-	-	1	-	-	-	-	-	-	1	2	-	-
	L (n = 3)	-	-	1	-	-	2	-	-	-	-	-	-	-	1	1	1	3	-	-	-	1	-

Table 2

Frequency of Responses to the Question "What is Reading?" by Higher and Lower Comprehenders in Grades 2, 4, 6, and 8

Grade	Comprehension Level	Object Focus	Decoding Focus	Meaning Focus
2	H (n = 4)	1(1)	12(4)	3(2)
	L (n = 2)	1(1)	4(2)	0
4	H (n = 3)	2(1)	6(3)	4(2)
	L (n = 3)	1(1)	7(3)	1(1)
6	H (n = 3)	0	5(3)	7(3)
	L (n = 3)	0	7(3)	2(1)
8	H (n = 3)	0	5(2)	7(3)
	L (n = 3)	1(1)	6(3)	4(2)

Note: Numbers in parentheses indicate the number of subjects who were responsible for the frequency of responses indicated.

Table 3

Frequency and Proportion of Responses to the Question "What is Reading?" by Higher and Lower Comprehenders Combined Across Grade Level

Comprehension Level	Object Focus	Decoding Focus	Meaning Focus
H (n = 13)	2(.04)	28(.55)	21(.41)
L (n = 11)	3(.08)	24(.71)	7(.21)

Note: Numbers in parentheses indicate the proportion of responses to the question.

Table 4

Frequency of Meaning-Focused Responses at Lexical, Discourse, and Extrapolated Levels to the Question "What is reading?" by Higher and Lower Comprehenders in Grades 2, 4, 6, and 8

Grade	Comprehension Level	Lexical	Connected Discourse	Extrapolated
2	H (n = 4)	-	1(1)	2(2)
	L (n = 2)	-	-	-
4	H (n = 3)	2(2)	2(2)	-
	L (n = 3)	1(1)	-	-
6	H (n = 3)	2(2)	2(2)	3(3)
	L (n = 3)	2(1)	-	-
8	H (n = 3)	-	3(2)	4(2)
	L (n = 3)	-	3(2)	1(1)

Note: Numbers in parentheses indicate the number of subjects who were responsible for the frequency of responses indicated.

Table 5

Frequency of Responses to the Question "Is this something (text) you can read?"

by Higher and Lower Comprehenders in Grades 2, 4, 6, and 8

Grade	Comprehension Level	Passage Form											
		Intact			Semantic			Syntactic			Lexical			Graphic		
		Y	N	Y/B	Y	N	Y/B	Y	N	Y/B	Y	N	Y/B	Y	N	Y/B
2	H (n = 4)	4	-	-	2	-	2	-	1	3	-	1	3	-	4	-
	L (n = 2)	2	-	-	2	-	0	2	-	0	2	-	0	-	2	-
4	H (n = 3)	3	-	-	-	3	-	-	3	-	-	3	-	-	3	-
	L (n = 3)	3	-	-	2	1	-	1	2	-	2	1	-	-	3	-
6	H (n = 3)	3	-	-	1	1	1	-	1	2	-	1	2	-	3	-
	L (n = 3)	3	-	-	2	-	1	2	-	1	1	-	2	-	3	-
8	H (n = 3)	3	-	-	-	1	2	-	2	1	-	2	1	-	3	-
	L (n = 3)	3	-	-	3	-	-	2	-	1	-	2	1	-	3	-

Table 6

Type and Frequency of Subjects' Meaning-Focused Responses to the Question "What is Reading?" Compared with Subjects' Judgments of the "Readableness" of Passages Altered Semantically, Syntactically, and Lexically

Subject Number	Grade Level	Comprehension Level	Meaning-Focused Responses to "What is Reading"				Responses on the "Readableness" of Altered Text Passage		
			Lexical Level	Discourse Level	Extra-polated Level	Total	Semantic	Syntactic	Lexical
04	2	L	-	-	-	-	Y	Y	Y
06	2	L	-	-	-	-	Y	Y	Y
01	2	H	-	-	-	-	Y/B	Y/B	Y/B
02	2	H	-	-	1	1	Y	N	N
03	2	H	-	1	1	2	Y/B	Y/B	Y/B
05	2	H	-	-	-	-	Y	N	Y
07	4	L	1	-	-	1	N	N	N
09	4	L	-	-	-	-	Y	Y	Y
11	4	L	-	-	-	-	N	N	N
08	4	H	1	1	-	2	N	N	N
10	4	H	1	1	-	2	N	N	N
12	4	H	1	1	-	2	N	N	N
13	6	L	-	-	-	-	Y	Y	Y/B
14	6	L	2	-	-	2	Y/B	Y/B	Y/B
15	6	L	-	-	-	-	Y	Y	Y
16	6	H	-	-	1	1	Y	Y B	Y/B
17	6	H	1	1	1	3	N	N	N
18	6	H	1	1	1	3	Y/B	Y/B	Y/B
22	8	L	-	1	-	1	Y	Y	N
23	8	L	-	-	-	-	Y	Y/B	N
24	8	L	-	2	1	3	Y	Y	Y/B
19	8	H	-	-	2	2	Y/B	N	N
20	8	H	-	2	2	4	N	N	N
21	8	H	-	1	-	1	Y/B	Y/B	Y/B

[a]Y = yes
[b]Y/B = yes, but
[c]N = no

Figure Caption

Figure 1. Subject's Paraphrased Responses to the Question "What is Reading?"

Object Focus---

* reading a book
* listening to instruction by a teacher

Decoding Focus---

* learning the alphabet/learning vowels and consonants
* sounding out words
* saying words
* looking at words
* recognizing words
* learning words
* memorizing words
* blending words to form compound words
* spelling words
* writing words
* punctuating sentences

Meaning Focus---

* learning word meanings
* understanding word meanings
* putting words together to make sentences/stories/poems
* understanding sentences/stories
* remembering what is read
* interpreting signs and symbols
* thinking about what is read
* learning about people and the world
* a form/means of communication

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